IFC-640

Intelligent Addressable
Fire Alarm System

JOHNSON CONTROLS

General

As a stand-alone small-to-large system, or as a large network, the IFC-640 meets virtually every application requirement.

Designed with modularity and for ease of system planning, the IFC-640 can be configured with just a few devices for small building applications, or for a large campus or high-rise application. Simply add additional peripheral equipment to suit the application.

Features

- One, expandable to two, isolated intelligent Signaling Line Circuit (SLC) Style 4, 6 or 7.
- Up to 159 detectors (any mix of ion, photo, thermal, or multi-sensor) and 159 modules (N.O. manual stations, two-wire smoke, notification, or relay) per SLC. 318 devices per loop/ 636 per FACP or network node.
- Standard 80-character display, 640-character large display, or display-less (a node on a network).
- Network option – 103 nodes supported (IFC-640, JNCA Network Annunciator, or IFW Network Control Station).
- 6.0 amp switch mode power supply with four Class A/B built-in Notification Appliance Circuits (NAC). Selectable System Sensor strobe synchronization.
- Built-in Alarm, Trouble, and Supervisory relays.
- Up to 64 output circuits per FACP or network node; circuits configurable online.
- Autoprogramming and Walk Test reports.
- Optional universal 636-point DACT.
- 80-character remote annunciators (up to 32).
- EIA-485 annunciators, including custom graphics.
- Printer interface (80-column and 40-column printers).
- History file with 800-event capacity in nonvolatile memory, plus separate 200-event alarm-only file.
- Alarm Verification selection per point, with tally.
- Autoprogramming and Walk Test reports.
- Positive Alarm Sequence (PAS) Presignal.
- Silence inhibit and Auto Silence timer options.
- March time / temporal / California two-stage coding / strobe synchronization.
- Field-programmable on panel or on PC
- Full QWERTY keypad.
- Charger for up to 90 hours of standby power.
- Non-alarm points for lower priority functions.
- Remote ACK/Signal Silence/System Reset/Drill via monitor modules.
- Automatic time control functions, with holiday exceptions.
- Surface Mount Technology (SMT) electronics.
- Extensive, built-in transient protection.
- Powerful Boolean logic equations.

JNCA 640-CHARACTER DISPLAY FEATURES:

- Backlit, 640-character display.

**IFC-640 shown in CAB-4 with
JNCA 640-character display**

- Supports SCS Series smoke control system in both HVAC or FSCS modes .
- Printer and CRT EIA-232 ports.
- EIA-485 annunciator and terminal mode ports.
- Alarm, Trouble, Supervisory, and Security relays.

FLASHSCAN® INTELLIGENT FEATURES:

- Poll 318 devices in less than two seconds.
- Activate up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.
- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — nine levels.
- Pre-alarm AWACS — nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
  - **Ion –** 0.5 to 2.5%/foot obscuration.
  - **Photo –** 0.5 to 2.35%/foot obscuration.
  - **Laser (VIEW®) –** 0.02 to 2.0%/foot obscuration.
  - **Acclimate –** 0.5 to 4.0%/foot obscuration.
  - **HARSH™ –** 0.5 to 2.35%/foot obscuration.
- Drift compensation (U.S. Patent 5,764,142).
- Degraded mode — in the unlikely event that the JCPU-640 microprocessor fails, FlashScan® detectors revert to degraded operation and can activate the JCPU-640 NAC circuits and alarm relay. Each of the four built-in panel circuits includes a Disable/Enable switch for this feature.

- Multi-detector algorithm involves nearby detectors in alarm decision (U.S. Patent 5,627,515).
- Automatic detector sensitivity testing.
- Maintenance alert (two levels).
- Self-optimizing pre-alarm.

VIEW® (VERY INTELLIGENT EARLY WARNING) SMOKE DETECTION TECHNOLOGY:
- Revolutionary spot laser design.
- Advanced AWACS algorithms differentiate between smoke and non-smoke signals (U.S. Patent 5,831,524).
- Addressable operation pinpoints the fire location.
- No moving parts to fail or filters to change.
- Early warning performance comparable to the best aspiration systems at a fraction of the lifetime cost.

ACCLIMATE
LOW-PROFILE INTELLIGENT MULTI-SENSOR:
- Detector automatically adjusts sensitivity levels without operator intervention or programming. Sensitivity increases with heat.
- Microprocessor-based technology; combination photo and thermal technology.
- FlashScan® or classic mode compatible with IFC-640.
- Low-temperature warning signal at 40°F ± 5°F (4.44°C ± 2.77°C).

RFX WIRELESS INTERFACE SYSTEM:
- Allows protection in areas where the use of wire is uneconomical or unpractical.
- Allows communication with wireless smoke detectors and wireless monitor modules; each RFX unit and detector is assigned an address.
- Requires 24 VDC from SLC or system auxiliary power.

HARSH™ HOSTILE-AREA SMOKE HEAD:
- Provides early warning of smoke detection in environment where traditional smoke detectors are not practical.
- The detector's filters remove particulates down to 30 microns in size.
- Intake fan draws air into photo chamber, while airborne particles and water mist are removed.
- Requires auxiliary 24 VDC from system or remote power supply.

RELEASING FEATURES:
- Ten independent hazards.
- Sophisticated cross-zone (three options).
- Delay timer and Discharge timers (adjustable).
- Abort (four options).
- Low-pressure CO_2 listed.

VOICE AND TELEPHONE FEATURES:
- Solid state message generation.
- Hard-wired voice control module options.
- Firefighter telephone option.
- 30- to 120-watt high-efficiency amplifiers (AA Series).
- Backup tone generator and amplifier option.
- Multichannel voice transponder (XPIQ).

HIGH-EFFICIENCY OFFLINE SWITCHING
3.0 AMP POWER SUPPLY (6.0 A IN ALARM):
- 120 or 220/240 VAC.
- Displays battery current/voltage on panel (with display).

Sample System Options

IFC-640
shown in CAB-C4 with PD-2 and voice alarm system
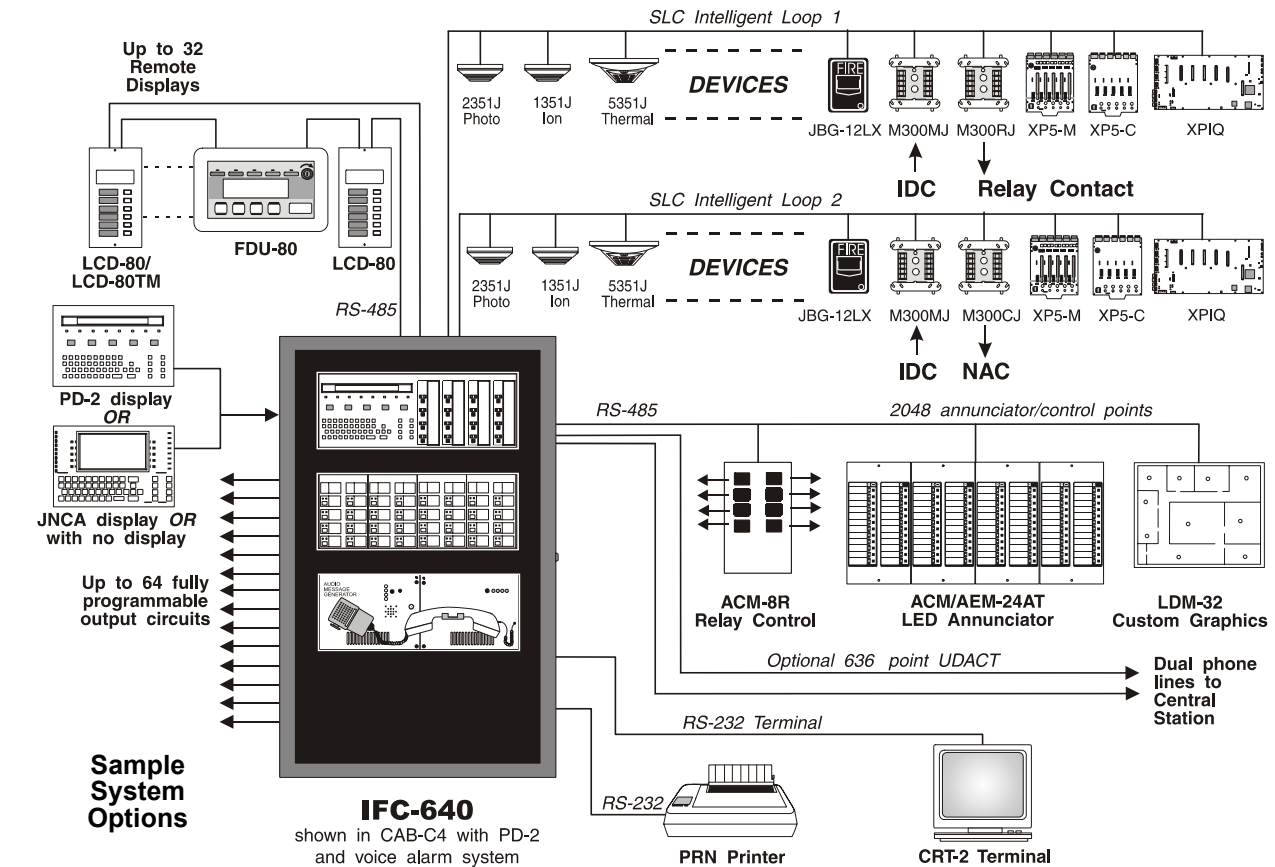
FlashScan®
Exclusive World-Leading Detector Protocol

At the heart of the IFC-640 is a set of detection devices and device protocol — FlashScan® (U.S. Patent 5,539,389). FlashScan® is an all-digital protocol that gives superior precision and high noise immunity.

In addition to providing quick identification of an active input device, this protocol can also activate many output devices in a fraction of the time required by competitive protocols. This high speed also allows the IFC-640 to have the largest device per loop capacity in the industry — 318 points — yet every input and output device is sampled in less than two seconds. The microprocessor-based FlashScan® detectors have bicolor LEDs that can be coded to provide diagnostic information, such as device address during Walk Test.

AWACS™ Advanced Warning Addressable Combustion Sensing

AWACS is a set of software algorithms that provide the IFC-640 with industry-leading smoke detection capability. These complex algorithms require many calculations on each reading of each detector, and are made possible by the very-high-speed microcomputer used by the IFC-640.

Drift Compensation and Smoothing: Drift compensation allows the detector to retain its original ability to detect actual smoke, and resist false alarms, even as dirt accumulates. It reduces maintenance requirements by allowing the system to automatically perform the periodic sensitivity measurements required by NFPA 72. Smoothing filters are also provided by software to remove transient noise signals, such as those caused by electrical interference.

Maintenance Warnings: When the drift compensation performed for a detector reaches a certain level, the performance of the detector may be compromised, and special warnings are given. There are three warning levels: (1) Low Chamber value, usually indicative of a hardware problem in the detector; (2) Maintenance Alert, indicative of dust accumulation that is near but below the allowed limit; (3) Maintenance Urgent, indicative of dust accumulation above the allowed limit.

Sensitivity Adjust: Nine sensitivity levels are provided for alarm detection. These levels can be set manually, or can change automatically between day and night. Nine levels of pre-alarm sensitivity can also be selected, based on predetermined levels of alarm. Pre-alarm operation can be latching or self-restoring, and can be used to activate special control functions.

Self-Optimizing Pre-Alarm: Each detector may be set for "Self-Optimizing" pre-alarm. In this special mode, the detector "learns" its normal environment, measuring the peak analog readings over a long period of time, and setting the pre-alarm level just above these normal peaks.

Cooperating Multi-Detector Sensing: A patented feature of AWACS is the ability of a smoke sensor to consider readings from nearby sensors in making alarm or pre-alarm decisions. Without statistical sacrifice in the ability to resist false alarms, it allows a sensor to increase its sensitivity to actual smoke by a factor of almost two to one.

Field Programming Options

Autoprogram is a timesaving feature of the IFC-640. It is a special software routine that allows the IFC-640 to "learn" what devices are physically connected and automatically load them in the program with default values for all parameters. Requiring less than one minute to run, this routine allows the user to have almost immediate fire protection in a new installation, even if only a portion of the detectors are installed.

Keypad Program Edit (with KDM-2) The IFC-640 has the exclusive feature of program creation and editing capability from the front panel keypad, *while continuing to provide fire protection*. The architecture of the IFC-640 software is such that each point entry carries its own program, including control-by-event links to other points. This allows the program to be entered with independent per-point segments, while the IFC-640 simultaneously monitors other (already installed) points for alarm conditions.

VeriFire® Tools is an offline programming and test utility that can greatly reduce installation programming time, and increase confidence in the site-specific software. It is Windows® based and provides technologically advanced capabilities to aid the installer. The installer may create the entire program for the IFC-640 in the comfort of the office, test it, store a backup file, then bring it to the site and download from a laptop into the panel.


```
ENTER PROG OR STAT PASSWORD, THEN ENTER
<ESCAPE TO ABORT> *****
```
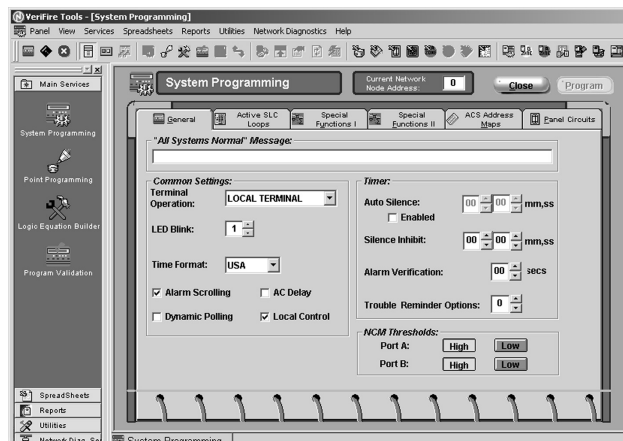


```
0=CLR 1= AUTO 2=POINT 3=PASSWORD 4=MESSAGE
```

Above: Keypad program editing.

**Below: Autoprogram function.**


```
AUTOPROGRAM   PLEASE WAIT
```



```
L1:80 DETS, 15 MODS L2:93 DETS, 35 MODS
 PANEL OUTPUTS:24    BELLS:  04
```
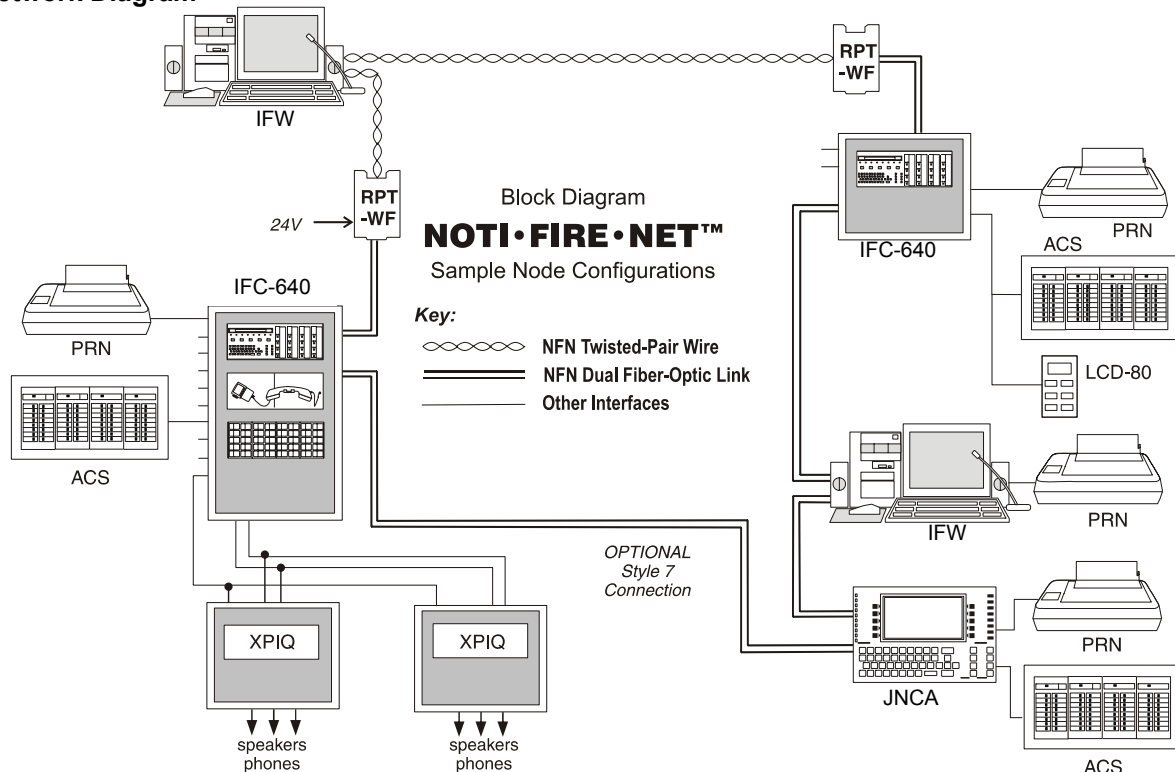

VeriFire ToolsSystem Programming screen

TOP, LEFT to RIGHT: **J8** Zone Code Input; **TB7** DC Power (24 VDC power-limited, both resettable and non-resettable available); **TB8** Alarm Relay; **TB9** Trouble Relay; **TB10** Supervisory Relay; **TB11** Security Relay; **SW1**, **SW5** Relay Switches; **JP13** General Board Earth Fault Jumper; **TB12** EIA-485 Terminal Mode (supervised); **TB13** EIA-485 ACS Mode (supervised); **TB14** EIA-232 Printer; **TB15** EIA-232 PC Terminal; **J1** NUP (network/service connection: power-limited, supervised); **TB16** SLC #1 Connections (detectors, modules; supervised); **D55** Main SLC Ground Fault LED; **JP7** Charger Disable Jumper; **JP12** 200MA Jumper; **JP6** Earth Fault Jumper (SLC #1).

JCPU-640 shown with KDM-2 Display
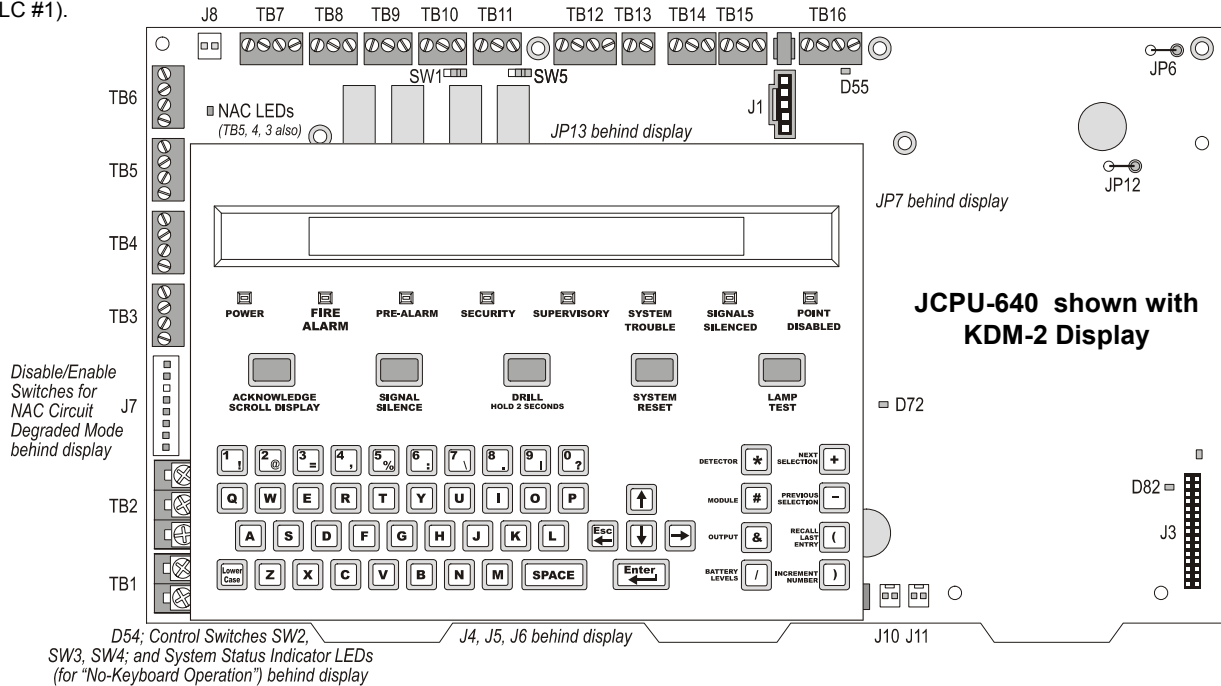
LEFT SIDE, TOP to BOTTOM: **TB6** NAC #1, **TB5** NAC #2, **TB4** NAC #3, **TB3** NAC #4 (all NAC circuits power-limited and supervised, and each NAC TB has an NAC LED to the right of it); **J7** Accessory Power; Disable/Enable Switches for Degraded Mode; **TB2** AC Power Connection; **TB1** Battery Connection (overcurrent protected). **BOTTOM, LEFT to RIGHT:** **D54** AC On LED; System Status Indicator LEDs for "No-Keyboard Operation"; System Switches **SW2** (Acknowledge), **SW3** (Silence), **SW4** (Reset) for "No-Keyboard Operation"; **J4** KDM-2 Connector; **J5**, **J6** Panel Circuits (Panel Output Modules, supervised); **D72** General Board Ground Fault LED; **J10** Security Tamper Switch; **J11** Auxiliary Trouble Input; **D82** AC Power LED; **J3** LEM-320 Connector (SLC Loop #2).

Network Diagram

Block Diagram
NOTI•FIRE•NET™
Sample Node Configurations

Key:
- NFN Twisted-Pair Wire
- NFN Dual Fiber-Optic Link
- Other Interfaces

Placement of Equipment in Chassis and Cabinet

The following guidelines outline the IFC-640's flexible system design.

Rows: The first row of equipment in the cabinet mounts in chassis **CHS-M2**. Mount the second, third, or fourth rows of equipment in chassis **CHS-4MB** (see IFC-640 Installation Manual regarding panel output modules) or **CHS-4L** (for voice components, see Voice Alarm System Manual).

Wiring: When designing the cabinet layout, consider separation of power-limited and non-power-limited wiring as discussed in the IFC-640 Installation Manual.

Positions: A chassis offers four basic side-by-side positions for components; the number of modules that can be mounted in each position depends on the chassis model and the size of the individual module. There are a variety of standoffs and hardware items available for different combinations and configurations of components.

It is critical that all mounting holes of the IFC-640 are secured with a screw or standoff to ensure continuity of Earth Ground.

Layers: The CHS-M2 accepts four layers of equipment, including the control panel. The **JCPU-640** fills three positions (left to right) in the first-installed layer (the back of the chassis); its integral power supply occupies (the left) two positions in the next two layers; the optional display occupies (the left) two positions at the front, flush with the door. Panel output modules can be mounted in several layers with standoffs or an L-bracket as required. Some equipment, such as the **JNCA**, may be door-mounted directly in front of the control panel. The JNCA mounts onto the DP-DISP or ADP-4B. The JNCA can be used as a primary display for the IFC-640 by directly connecting their network ports (required in Canadian stand-alone applications).

Expansion: Installing an **LEM-320** Loop Expander Module adds a second SLC loop to the control panel. The LEM-320 is mounted onto the JCPU-640, occupying the middle-right, second (back) slot on the chassis. If networking two or more control panels, each unit requires a **NCM-W** (wire) or **NCM-F** (fiber) Network Control Module. The NCM-W/-F can be installed in any panel output module position (see manual); the default position is at the back of the chassis next to the control panel. **Option boards** can be mounted in front of the LEM-320 or NCM modules; for ease of access, complete installation of those devices before mounting another layer.

KDM-2 Controls and Indicators

Program Keypad: QWERTY type (keyboard layout).

8 LED indicators: Power; Fire Alarm; Pre-Alarm; Security; Supervisory; System Trouble; Signals Silenced; Points Disabled.

Membrane Switch Controls: Acknowledge/Scroll Display; Signal Silence; Drill; System Reset; Lamp Test.

LCD Display: 80 characters (2 x 40) with long-life LED backlight.
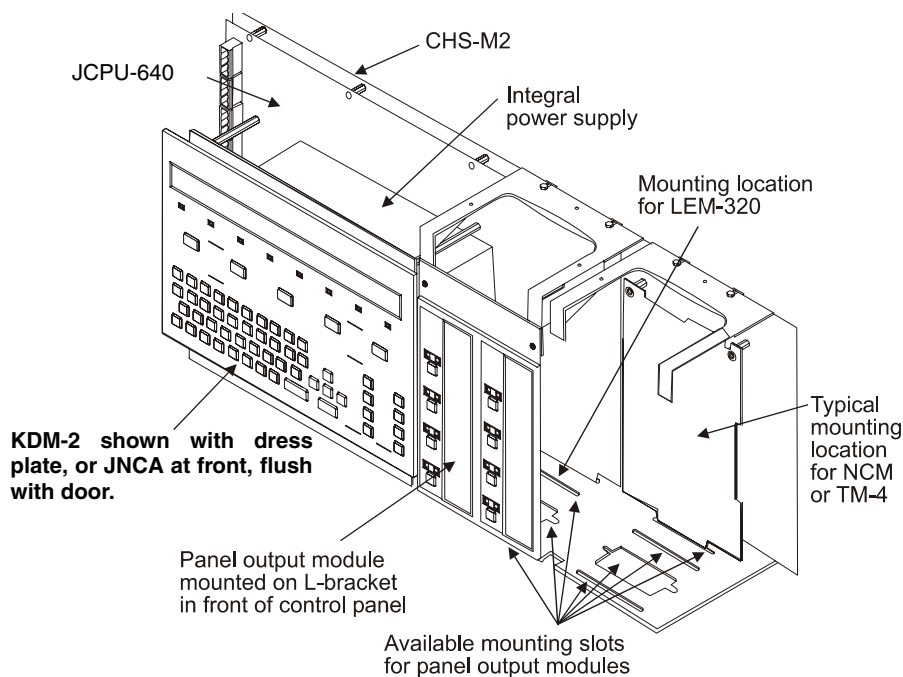
Configuration Guidelines

Stand-alone and network systems require a main display. On single-CPU systems (one JCPU-640/-640E), display options are the KDM-2 or the JNCA. On network systems (two or more JCPU-640/-640Es), at least one JNCA or IFW annunciation device is required. Other options listed as follows:

KDM-2: 80-character backlit LCD display with QWERTY programming and control keypad. Order two BMP-1 blank modules and DP-DISP mounting plate separately. *Requires top row of a cabinet. Required for each stand-alone 80-character display system. The KDM-2 may mount in network nodes to display "local" node information as long as at least one JNCA or IFW network display is on the system to display network information.*

JNCA: Network Control Annunciator, 640 characters. On single CPU-640/-640E systems, the JNCA is the Primary Display for the panel and connects directly to the CPU-640/-640E. On network systems (two or more CPU-640/-640Es), one network display (either JNCA or IFW) is required for every system. On network systems, the JNCA connects (and requires) an NCM network communications module. Mounts in a row of FACP node or in two annunciator positions. Mounting options include the DP-DISP, ADP-4B, or in an annunciator box, such as the JABS-2D. In CAB-4 top-row applications, a DP-DISP and two BMP-1 blank modules are required for mounting. *See JNCA technical bulletin.*

JCPU-640: Central processing unit with integral 3.0 amp (6.0 A in alarm) power supply for an IFC-640 system. Includes CPU; one Signaling Line Circuit expandable to two; installation, programming and operating manuals. *Order one per system or as necessary (up to 103 network nodes) on a network system.*

JCPU-640E: Same as JCPU-640 but requires 220 VAC, 1.5 amp, (3.0 A in alarm).

CHS-M2

JCPU-640

Integral power supply

Mounting location for LEM-320

KDM-2 shown with dress plate, or JNCA at front, flush with door.

Typical mounting location for NCM or TM-4

Panel output module mounted on L-bracket in front of control panel

Available mounting slots for panel output modules

CHS-M2: Mounting chassis for JCPU-640. One required for each CPU-640/-640E.

DP-DISP: Dress panel for top row in cabinet with CPU-640/-640E installed.

BMP-1: Blank module for unused module positions.

System Modules

The IFC-640 includes the ability to communicate with up to eight conventional modules each with up to eight circuits. Any mix of notification, relay, speaker, or telephone may be used. Choose any combination of up to eight output modules: ICM/ICE, CRM/CRE, DCM-4 or VCM/VCE. Panel modules mount on either: the two far-right positions of the DP-DISP (next to the primary display); or on any of the four positions on the CHS-4N chassis (CHS-4MN kit required).

NOTES: 1) These modules/expanders are NOT to be used for releasing applications. 2) For additional information on these panel output modules and expanders, see technical bulletin.

CHS-4MB: Expansion Chassis. Mounts up to four modules. Includes CHS-4N, MP-1B (Module Dress Panel), and Expander Ribbon Cable.

ICM-4RK: Notification Appliance Circuit Module, provides four Style Y (Class B) or Style Z (Class A) alarm Notification Appliance Circuits. Maximum signaling current is 3.0 amps per circuit or 6.0 amps per module, subject to power supply limitations (includes auxiliary power harness, ELRs and slide-in labels).

Includes ON/OFF controls and ON/OFF LEDs.

ICE-4: Notification Appliance Circuit Expander, expands ICM-4 to provide a total of eight Style Y or Style Z alarm Notification Appliance Circuits. Circuit ratings are same as ICM-4.

NOTE: Maximum of one per ICM-4RK. May also be used to add four Notification Appliance Circuits to VCM-4.

CRM-4RK: Control Relay Module, four Form-C relay contacts, rated at 5.0 A, 120 VAC or 28 VDC (resistive) per circuit. Includes manual ON/OFF controls and LEDs.

CRE-4: Control Relay Expander, expands CRM-4 to provide a total of eight Form-C relay contacts. Note: maximum of one per CRM-4RK. May also be connected to add four relays to ICM-4, TCM-2, TCM-4, or VCM-4.

VCM-4RK: Voice Control Module provides four Style Y (25 and 70 Vrms) and Style Z (25 Vrms only) speaker circuits, eight manual select switches and indicators, slide-in labels, and plug-in terminal blocks. Move jumper to convert to telephone circuits with remote ring signal and local call-in flash. May be expanded to eight circuits with VCE-4, ICE-4, or CRE-4.

VCE-4: Voice Control Expander adds four circuits to VCM-4. Note: VCM-4/ VCE-4 combination must be eight speaker or eight phone circuits.

DCM-4RK: Dual Channel Module pro-vides four Class B (Style Y, 25 & 70 Vrms) or Class A (Style Z, 25 Vrms only) speaker circuits plus four channel A/B select relays. Not expandable.

OTHER OPTION MODULES

ARM-4: Auxiliary Relay Module, four Form-C relays controlled by a relay module (CRM-4 or CRE-4). N.O. contacts rated 20 amps; N.C. contacts rated 10 amps at 125 VAC and 30 VDC.

NOTE: Maximum of one for each CRM-4 or CRE-4.

JVCC-1B: Voice Control Center. Provides a variety of user-selectable tones on a single channel. Up to two different tones or messages may be selected on a single channel. Also provides optional digital voice message capability and **on-site** programmable voice messages. Includes Audio Message Generator (AMG-1) microphone, cables, dress panels, and instructions.

JVTCC-1B: Voice/Telephone Control Center. Provides all that the JVCC-1 provides plus two-way Fire Fighters Telephone (FFT-7) capability.

JTCC-1B: Telephone Control Center. Provides a stand-alone two-way Fire Fighters telephone (FFT-7S).

Includes cables, dress panel and instructions.

RM-1/RM-1SA: Remote microphone assemblies, mount on ADP-4 (RM-1) dress panel or CAB-RM/-RMR (RM-1SA) stand-alone cabinets. *See DN-6728.*

AMG-E: Audio Message Generator (without microphone). Order in addition to JVCC-1 or JVTCC-1 if two-channel system is required.

FFT-7/FFT-7S: Fire Fighters Telephone control with master handset.

FTM-1: Firephone Control Module connects a remote firefighter telephone to a centralized telephone console. Reports status to panel. Wiring to jacks and handsets is supervised.

AA-30: Audio Amplifier, 30 watts. Switch-mode power. Includes amplifier and audio input supervision, backup input, and automatic switchover, power supply, cables. *See AA Series technical bulletin.*

AA-120/AA-100: Audio Amplifier provides up to 120 watts of 25 Vrms audio power for the IFC-640. The amplifier contains an integral chassis for mounting to a CAB-B4, -C4, or -D4 backbox (consumes one row). Switch-mode power. Includes audio input and amplified output supervision, backup input, and automatic switchover to backup tone. Order the AA-100 for 70.7 Vrms systems and 100 watts of power. *See AA Series technical bulletin.*

VROM-(n): Factory-programmed message for installation in AMG-1. Provides up to 24 seconds of evacuation message on nonvolatile memory chip. Choose one of many standard messages available. Up to two of these messages may be installed in one AMG. Includes VROM, instructions for installation and operation, and written text of message. *See VROM technical bulletin.*

VRAM-1: Field-programmed memory to be installed in AMG-1. Provides up to 24 seconds of field-programmable evacuation message on nonvolatile memory chip. Message is programmed from microphone or cassette tape. Up to two of these nonvolatile memory chips may be installed in one AMG. Includes VRAM and instructions for installation and operation.

APS-6R: Auxiliary Power Supply (expander). Provides up to 6.0 amperes of regulated power for compatible Notification appliance circuits. Includes battery input and transfer relay, and over-current protection. Mounts on one of four positions on a CHS-4L or CHS-4 chassis. *See APS-6R technical bulletin.*

ACPS-2406: 6.0 amp addressable charger power supply. *See ACPS-2406 technical bulletin.*

FCPS-24: The FCPS-24 is a remote six-amp (four-amp continuous) repeater/power supply. *See FCPS-24 technical bulletin.*

FCPS-24S6/-24S8: Remote six-amp and eight-amp power supplies with battery charger. *See FCPS-24S6/-24S8 technical bulletin.*

UZC-256: Programmable Universal Zone Coder provides positive non-interfering successive zone coding. Microprocessor-controlled, field-programmable from IBM®-compatible PCs (requires optional programming kit). *See UZC-256 technical bulletin.*

LCD-80/LCD-80TM/FDU-80: 80-character, backlit LCD display. Mounts up to 6,000 ft. (1828.8 m) from panel. Up to 32 per IFC-640. *See LCD-80/-80TM and FDU-80 technical bulletins.*

ACS: Annunciator Control Modules ACM-16AT, AEM-16AT, ACM-32A, and AEM-32A. *See ACS technical bulletin and ACM/AEM-24AT and ACM/AEM-48A technical bulletin.*

AFM: Annunciator Fixed Modules AFM-16A, AFM-16AT, and AFM-32A. *See AFM technical bulletin.*

LDM: Lamp Driver Modules LDM-32, LDM-E32, and LDM-R32. *See LDM technical bulletin.*

ACM-8R: Remote Relay Module with eight Form-C contacts. Can be located up to 6,000 ft. (1828.8 m) from panel on four wires. *See ACM-8R technical bulletin.*

SCS: Smoke control station; eight (expandable to 16) circuits. *See SCS technical bulletin.*

RPT-485: Repeats EIA-485 over twisted pair or converts to fiber-optic medium. *See RPT technical bulletin.*

XP5: The XP5-M and XP5-C provide FlashScan® transponder points. *See XP5 technical bulletin.*

XP: The XP Series Transponder provides conventional monitor and control points (CLIP mode only). *See XP Series technical bulletin.*

XPIQ: The XPIQ quad intelligent voice transponder for distributed multichannel voice evacuation systems, an integrated audio amplification and distribution subsystem controlled by FACP. Capable of playing up to four simultaneous messages. Accepts up to four 25-watt amplifiers. *See XPIQ technical bulletin.*

CHS-4: Chassis for mounting up to four APS-6Rs.

CHS-4L: Low-profile four-position Chassis. Mounts two AA-30 amplifiers or one AMG-E and one AA-30.

DP-1B: Blank Dress panel. Provides dead-front panel for unused tiers or to cover AA-30, AA-120, or one AMG-E and one AA-30.

CAB-4 Series: The CAB-4 Series cabinets are fabricated from 16-gauge steel. The cabinet assembly consists of two basic parts: a Backbox (SBB-_4), and a Locking Door (DR-_4) that may hinge right or left. Cabinets are available in four sizes, "A" through "D", with one to four tiers. A trim ring option is available for semi-flush mounting. *See CAB-4 Series technical bulletin.*

COMPATIBLE DEVICES, EIA-232 PORTS

JPRN-5: 80-column printer.

JPRN-6: 80-column printer.

VS4095/S2: Printer, 40-column, 24 V. Mounted in external backbox. *Order from Keltron, Inc.*

CRT-2: Video display terminal.

COMPATIBLE DEVICES, EIA-485 PORTS

ACS Series: Remote serial annunciator/control systems.

FDU-80: Remote LCD display, 80 characters, with LEDs.

LCD-80: Remote LCD display, 80 characters.

LCD-80TM: Remote LCD display, 80 characters, terminal mode.

LDM Series: Remote custom graphic driver modules.

ACM-8R: Remote relay module. 8 Form-C relays.

RPT-485 Series: Repeater, isolator and/or fiber-optic modem.

UDACT: Universal Digital Alarm Communicator Transmitter, 636 channel.

UZC-256: Zone Coder. Up to 256 programmable codes.

COMPATIBLE INTELLIGENT DEVICES

BEAMHK: Heating kit for transmitter/receiver unit of FSB-200(S) below.

BEAMHRK: Heating kit for use with the reflector of FSB-200(S) below.

BEAMLRK: Long-range accessory kit, FSB-200(S) below.

BEAMMRK: Multi-mount kit, FSB-200(S) below.

BEAMSMK: Surface-mount kit, FSB-200(S) below.

FSB-200: Intelligent beam smoke detector.

FSB-200S: Intelligent beam smoke detector with integral sensitivity test.

1951J: Low-profile FlashScan® ionization detector, will replace 1351J.

1351J: Low-profile FlashScan® ionization detector.

2951J: Low-profile FlashScan® photoelectric detector, will replace 2351J.

2351J: Low-profile FlashScan® photoelectric detector.

2951TJ: Low-profile FlashScan® photoelectric detector with 135°F (57°C) thermal, will replace 2351TJ.

2351TJ: Low-profile FlashScan® photoelectric detector with 135°F (57°C) thermal.

5951J: FlashScan® thermal detector 135°F (57°C), will replace 5351J.

5351J: FlashScan® thermal detector 135°F (57°C).

5951RJ: FlashScan® thermal detector 135°F (57°C) with rate-of-rise, will replace 5351RJ.

5351RJ: FlashScan® thermal detector 135°F (57°C) with rate-of-rise.

5951HJ: FlashScan® 190°F (88°C) high-temperature thermal detector.

DH300PL: Low-flow FlashScan® photo duct detector with housing.

DH300RPL: Low-flow FlashScan® photo duct detector with relay and housing.

2951TMJ: FlashScan® Acclimate low-profile multi-sensor detector.

FTX-P2J: FlashScan® HARSH™ Hostile Area Smoke Head.

7351J: FlashScan® VIEW® laser photo detector, will replace 7251J.

7251J: Low-profile VIEW® laser photo detector.

B224RB: Low-profile relay base.

B224BI: Isolator base for low-profile detectors.

B210LPJ: Low-profile base. Standard U.S. style.

B501J: European-style, 4" (10.16 cm) base.

B501BH: Sounder base, includes B501J base above. Constant tone.

B501BHT: Sounder base, includes B501J base above. Temporal three tone.

M300MJ: FlashScan® monitor module.

M300DJ: FlashScan® dual monitor module.

M302MJ: FlashScan® two-wire detector monitor module.

M301MJ: FlashScan® miniature monitor module.

M300CJ: FlashScan® NAC control module.

M300RJ: FlashScan® relay module.

M300SMJ: FlashScan® pull station monitor module.

JBG-12LX: Manual fire alarm station, addressable.

M500XJ: Isolator module.

XP6-C: FlashScan® six-circuit supervised control module.

XP6-MA: FlashScan® six-zone interface module; connects intelligent alarm system to two-wire conventional detection zone.

XP6-R: FlashScan® six-relay (Form-C) control module.

XP10-M: FlashScan® ten-input monitor module.

XPIQ: Intelligent quad transponder.

OTHER OPTIONS

DPI-232: Direct Panel Interface, specialized modem for extending serial data links to remotely located FACPs and/or peripherals.

LEM-320: Loop Expander Module. Expands each 640 to two Signaling Line Circuits.

TM-4: Transmitter Module. Includes three reverse-polarity circuits and one municipal box circuit. Mounts in panel module position (single-address-style) or in CHS-M2 position.

NCM-W: Network Communications Module, Wire. Order one NCM per network node (JCPU-640 or JNCA).

NCM-F: Network Communications Module, Fiber. Order one NCM per network node (JCPU-640 or JNCA).

IFW-W: Intelligent Fire Workstation (network control station), Wire. UL-Listed graphics PC with mouse, 17" color flat-screen LCD monitor. Order as necessary for network systems. Each IFW consumes one of 103 network addresses.

IFW-F: Intelligent Fire Workstation (network control station), Fiber. UL-Listed graphics PC with mouse, 17" color flat-screen LCD monitor. Order as necessary for network systems. Each IFW consumes one of 103 network addresses.

JVeriFire-TCD: VeriFire® Tools CD-ROM. Contains programming software for the IFC-640, JNCA, and XPIQ. Includes local panel connection cable. Programming PC requires a serial port connection.

ACM-24AT: ACS annunciator – up to 96 points of annunciation with Alarm or Active LED, Trouble LED, and switch per circuit. Active/Alarm LEDs can be programmed (by powered-up switch selection) by point to be red, green, or yellow; the Trouble LED is always yellow.

AEM-24AT: Same LED and switch capabilities as ACM-24AT, expands the ACM-24AT to 48, 72, or 96 points.

ACM-48A: ACS annunciator – up to 96 points of annunciation with Alarm or Active LED per circuit. Active/Alarm LEDs can be programmed (by powered-up switch selection) in groups of 24 to be red, green, or yellow. Expandable to 96 points with one AEM-48A.

AEM-48A: Same LED capabilities as ACM-48A, expands the ACM-48A to 96 points.

BAT Series: Batteries. IFC-640 utilizes two 12 volt, 12 to 55 AH batteries. *See DN-6933.*

PS Series: Batteries. IFC-640 utilizes two 12 volt, 12 to 55 AH batteries.

JCI-LBB: Battery Box (required for batteries over 25 AH).

SYSTEM SPECIFICATIONS

System Capacity

- Intelligent Signaling Line Circuits ....1 expandable to 2
- Intelligent detectors .... 159 per loop
- Addressable monitor/control modules .... 159 per loop
- Programmable internal hardware and output circuits (4 standard) 68
- Programmable software zones 99
- Special programming zones 14
- LCD annunciators per CPU-640/-640E and JNCA *(observe power)*.. 32
- ACS annunciators per CPU-640/-640E ....32 address x 64 points
- ACS annunciators per JNCA ....32 address x 64 or 96 points

NOTE: *The JNCA supports up to 96 annunciator address points per ACM-24/48.*

Specifications

- Primary input power, **JCPU-640 board:** 120 VAC, 50/60 Hz, 3.0 amps. **JCPU-640E board:** 220/240 VAC, 50/60 Hz, 1.5 Amps.
- **Total** output 24 V power: 6.0 A in alarm.

NOTE: *The power supply has a total of 6.0 Amps of available power. This is shared by all internal modules.*

- Standard notification circuits (4): 2.5 A each.
- Four-wire detector power: 1.25 A.
- Non-resettable regulated power outputs: 1.25 A each.
- Battery charger range: 12 AH – 55 AH. Use separate cabinet for batteries over 25 AH.
- Optional high-capacity (25 – 120 AH) battery charger: CHG-120 (see CHG-120 data sheet, DN-6040).
- Float rate: 27.6 V.

Temperature and Humidity Ranges

This system meets NFPA requirements for operation at 0 – 49ºC/32 – 120ºF and at a relative humidity 93% ± 2% RH (noncondensing) at 32ºC ± 2ºC (90ºF ± 3ºF). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27ºC/60 – 80ºF.

Agency Listings and Approvals

The listings and approvals below apply to the basic IFC-640 control panel. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL:** S1570
- **ULC:** ML118
- **FM APPROVED** *Exceptions – JCPU-640E, Proprietary service*
- **CSFM:** 7165-0554:143, 7170-0554:142
- **MEA:** 317-01-E Vol. II
- **City of Chicago**

Standards

The IFC-640 complies with the following UL Standards and NFPA 72 Fire Alarm Systems requirements :

- **UL 864** (Fire)
- **UL 1076** (Burglary)
- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires 4XTMF).
- **REMOTE STATION** (Automatic, Manual and Waterflow) (requires 4XTMF).
- **PROPRIETARY** (Automatic, Manual and Waterflow). *Not applicable for FM.*
- **EMERGENCY VOICE/ALARM**.